transverse blotch. Last segment lighter, without markings, posterior margin with three short hairs on each side of the middle; scattered hairs of variable size on dorsum.

Menopon corporosum Kellogg and Kuwana.

One specimen from *Arenaria interpres,* Norton Island, and two from *Phalaropus lobatus;* same locality. The last two are undoubtedly stragglers.

New Oregon Trichoptera.

By Annie Laura Hill-Griffin, Payette, Idaho.

(Plates III and IV.)

In preparing a thesis on the biology of certain Trichoptera, completed June, 1911, I sent a number of specimens to Dr. C. Betten, of Lake Forest, Illinois, to be identified.

Six of the species submitted to Dr. Betten turned out to be new or probably new. One represented a new genus. It has been a great disappointment, that of four of these new species, there was not enough material to describe, in some cases only one imperfect specimen being in the collection. This was the case with the Psychomyid which represents the new genus. This was collected by myself, in October, 1908, at Crystal Lake, with five others of different species.

The list of new Trichoptera is as follows:

Limnophilidae. *Grammataulius bettenii,* n. sp.

Sericostomatidae. *Atomyia,* n. sp.

Leptoceridae. *Mystacides alafimbriata,* n. sp.

Psychomyidae. n. g. n. sp.

Rhyacophilidae. *Glossosoma,* n. sp. *Glossosoma,* probably new.

The collection contained enough specimens of two of these species so that descriptions could be made. The first one, a *Grammataulius,* I have given the name of *bettenii* in recognition of the kind assistance given me in the determination of specimens by Dr. Cornelius Betten. The second, a Leptocerid, has been given the descriptive name *alafimbriata* because of the long, soft black fringe upon the outer and inner margins of the hind wings.

Grammataulius bettenii, n. sp. (Pl. III).

Ocraceous, with brighter colored hairs, and dark markings. Head, yellowish, hairy. Antennae, testaceous, with short, black appressed hairs; underside of basal joint clothed with longer black hairs, and a thin tuft of black hair under each antenna; basal joint about twice as long as wide. Palpi yellow. Thorax with hairy yellow band divided by a naked medial line, and having a triangular, black pilose patch on either side. Legs yellowish, with black spines. Abdomen yellowish, sparsely provided with short, pale hairs; sometimes of a grayish hue.

A dorsal view, with folded wings showing an extremely long and narrow isosceles triangle with its point half-way back along the wings. It is formed by the dark edge of one wing which folds slightly over the other, for a part of the distance.

Anterior wing narrow, obliquely truncate, inner margin concave. Yellowish hyaline, marked with brown and scantily clothed with pale yellow hairs. Vandyke brown streak through center of wing, extending through thyridial area and the fourth apical cell. Other dark streaks consisting of irregular patches of color, occupy discoidal and thyridial cells, and many scattered irregular spots are distributed promiscuously throughout interneural areas. Venation pale. Solid streak of Vandyke brown extending from near arculus to the anal angle, with brown irrorations beneath. Costal area immaculate except for a faint irregular cloudiness near the base. Thyridium and arculus hyaline. Pterostigma absent. Discoidal cell slightly longer than its pedicel and very narrow.

Posterior wings slightly shorter than the anterior, but at least twice as wide toward the base, hyaline, the apical portion scantily clothed with short pale hairs. Venation light yellow. No markings except the very characteristic brown streak between and partly within the third and fourth apical cells. It covers the vein until near the end, when it curves upward, and the vein downward. Scanty long hairs near attachment of wing, extending along the two lowest veins and the margin.

Length of body, from 13 to 17 mm. Alar expanse, 41 mm.

Case: Composed of bits of straw arranged longitudinally in such a manner as to form a cylinder. The straws usually, though not always, form a spiral having 1½ to 5 or 6 turns. Occasionally, the straws are cut as long as the entire case, which then has no spiral effect.. In this instance, no indication is given of the earlier stage of the case, and I suspect this occurs only when the larva has been deprived when nearly grown, of its case, and has then made it to suit its own size and has not had to enlarge it subsequently. Sometimes the narrow blades of a sort of watergrass are fastened together to make what appears to be

a short piece of a very wide blade of grass, and then this piece is fastened into the case just as are the others which are not "pieced together."

Habits and Occurrence: Found in small ponds along the C. & E. R. R., Corvallis, Oregon, and in ponds formed by the widening of slow-flowing streams. Also in various slow streams flowing through meadows. The earliest species to emerge in the laboratory, and probably one of the first to do so outside, since the larvae are far in advance of the most of the others, being nearly ready to pupate in the latter part of January and first weeks of February, varying slightly from year to year. Pupation occurs in February and the first of March, and I have records of emergence of adults March 12, 14, 15, 20, 21 and 30, and April 10. All the adults in the collection, however, bear dates of September, October and November, which suggests two broods, or a very long adult life.

The larvae seem to be restricted as to locality, but quite abundant when found at all. The adults are moderately plentiful, for caddisflies. This is one of the four largest species in the collection of the Oregon Agricultural College at Corvallis. Larvae are difficult to rear inside. They feed on water plants, dead and decaying leaves, manure and filth which may happen to be in the meadow streams where they live.

Eggs and oviposition unknown to me.

Mystacides alafimbriata, n. sp. (Pl. IV).

Small, black, delicate and graceful, clothed with short black hair. Head black, shining, with a few hairs between and below the antennae, which are long and filiform; basal fourth annulated with buff; basal segment very large in proportion to the antennae, surrounded with black hair. Palpi very bristly with black hair. Thorax black and shining. Legs grayish-yellow with few small black spines. Abdomen dark gray.

Anterior wing long, rather narrow, rounded at apex, dusky, clothed with short black hairs. The costal area is darker than the remainder. Venation brown. Thyridium and arculus hyaline. Pterostigma present. Discoidal cell about the same length as its pedicel. The first apical cell is not very long; not so long as the second, in fact. All interneural areas extremely long and narrow.

Posterior wing slightly lighter in color than the anterior; approximate shape, half an ellipse cut longitudinally. Venation, yellow-brown, the median vein being very strong and thick. Costa extremely strong, with hamuli extending from the center of the costa about halfway to the apex. Cross-veins entirely absent except for a small one near the base. Both outer and inner margins fringed with long soft, black hair which increases in length to the base of the wing, where it is fully as wide as the attachment itself.

Length of body, 6 mm. Alar expanse, 17 mm.

Collected at Permelia Lake, Mt. Jefferson, Oregon, July 16, 1908, by Prof. J. C. Bridwell.

In the latter part of June, just after the preceding was written, a few specimens of this same species were captured by Mr. A. J. Stover, at Colorado Lake, an arm of the Willamette, near Corvallis. After making sure of its identity with *M. alafimbriata,* an attempt was made to find larvae and pupae. A number of small, slender pupal cases were suspected and rearing proved them to be undoubtedly the new species. Larvae were also found.

The adults at Colorado Lake appear about 5 or 6 o'clock in the evening, in swarms, and dance and hover above the water with dizzying pertinacity. Except accidentally, they do not seem to alight, nor to touch one another. They hover directly above where the larvae and pupae are found, but could not be detected in the act of oviposition.

Pupa: The pupal cases are found attached to floating logs or snags in Colorado Lake. They resemble the larval cases. The well-developed pupa has extremely long antennae like the adult. These curve back above the eye, slant across the black wing and down to the posterior end of the abdomen, where their surplus length is coiled into a curl, through which the tips finally project backwards. Length of pupa 8 mm.

Larva: The larva is a very small, slender, but extremely active creature with comically long hind legs. These it places in advance of the middle pair, in walking, making it appear as though the middle legs were longer than the hind legs. Upon close inspection, however, the latter are seen crossing

the middle legs. When removed from the case, they move about with quick, jerky movements, actually jumping, like a flea, at times. They feed on grass and various water plants. Length of a larva, probably nearly full-grown, 6 mm.

Case: A small, slender cylinder of long bits of reed, straw, sticks, etc., placed lengthwise. Usually one straw about twice the length of the case is attached to it dorsally, or two very long ones, laterally. Occasionally, a part of the case is constructed of grains of sand and tiny bits of miscellaneous material.

Eggs: not observed.

EXPLANATION OF PLATES.

PLATE III.

Grammataulius bettenii, n. sp.

Fig. 1, Adult; 2, Larva; 3, Wings; 4, Maxilla of larva; 5, Larval case; 6, End of Pupal case and detail of net in end; 7a, Labrum and 7b, Mandible of Larva; 8, 9 and 10, Dorsal, lateral and ventral views respectively of the male genitalia; 11, Head of imago, dorsal view; 12, Dragging hook of larva; 13a, 13b, First and third legs of larva; 14, Mandibles of pupa.

PLATE IV.

Mystacides alafimbriata, n. sp.

Fig. 1, Adult; 2, Wings of male; 3, 4 and 5, Lateral, ventral and dorsal views respectively of the male genitalia; 6, Head of adult, dorsal view; 7, Lateral view of the female genitalia; 8, Dragging hook of larva; 9, Mandible of larva; 10, Pupa; 11, Labrum of larva; 12, Ventral view of larval case; 13, Larva; 14, End of pupal case; 15, Maxilla of larva; 16a, 16b and 16c, Middle, front and hind legs respectively of larva.

Notes on Australian Pentatomidae (Rhynch.).

By E. BERGROTH, Turtola, Finland.

Stelgidophora pallida V. Duz.

This insect was described as doubtfully belonging to *Dictyotus* Dall. and was later placed by Van Duzee in the genus *Eurynannus* Bergr. It is allied to *Eurynannus*, but so distinct that a *new genus* **Stelgidophora** must be founded upon it. As described by me in Proc. Zool. Soc. Lond., 1905, II, pp. 153-154, the head of *Eurynannus* is unique in the Pentatomidae in